

ABSTRACT

A solution for transmitting a plurality of carriers in a wireless system, such as GSM, TDMA, and WCDMA includes dividing a base-band digital input signal into two paths. In a reference path, an RF up-converter acts as a reference source for an analog FF error canceling loop having an RF bandwidth much wider than the required output (multiple carrier) bandwidth. The analog FF error loop also has an error-signal bandwidth that is wider than the error-signal bandwidth available from current ADC- and DAC-techniques. The other path feeds the base-band digital signal through another RF up-converter to an MPA in a FF MCPA and uses a digital predistortion technique to reduce distortion in the MPA, thereby easing the suppression demands on the analog FF error canceling loop in the MCPA. The difference (error) signal between the desired signal from the reference path and the actual MPA output signal is processed in an analog RF FF loop for canceling unwanted signals at the MCPA output.